Software Capability Improvement

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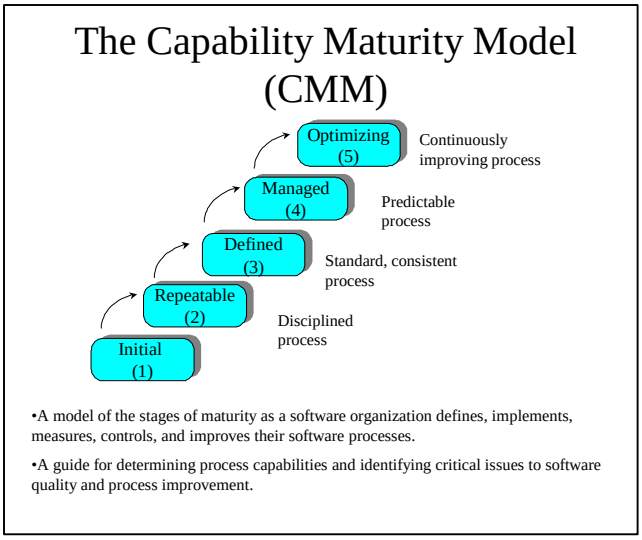

Objective

Define and implement a "best of class" software process improvement methodology for the MSFC flight software development organization and potential application at other NASA centers. This methodology will attain improvement of the software process through: 1) identification of key practices required by the Capability Maturity Model (CMM) which are lacking in the current process, 2) comparison of existing processes and functions to widely accepted "best" practices, 3) assessment of previous process improvement efforts conducted at the Langley Research Center (LaRC) and Goddard Space Flight Center (GSFC), 4) definition and execution of an implementation plan to incorporate new practices/functions or change existing practices/functions based on assessment findings, 5) identification of tools to facilitate and/or automate critical software development functions, 6) definition of a software knowledge architecture along with a roadmap for implementation, and 7) establishment of an approach to organizational change management (to include measures).

Why Needed

Presently, all NASA centers are required to become certified under ISO 9000. One of the critical areas for certification and a process which is highly scrutinized during ISO 9000-related audits is software development. Additionally, it has been proposed that all NASA software development organizations be certified to a Software Engineering Institute (SEI) Capability Maturity Model (CMM) Level 3. The premise of both of these standards is to improve the quality of the products by improving the quality of the process or processes used in the development of those products. The MSFC Flight Software Group has already obtained ISO 9000 certification through the center; however, to obtain CMM Level 2 or 3 certification, substantial process improvements must be made. Although the CMM provides the necessary characteristics and practices for a software development process at the various levels, it does not provide a method for evolving from one level to the next by implementing the process functions that are lacking or improving existing practices. The Software Process Improvement (SPI) methodology will establish a structure to determine and implement the necessary process improvements to transition from CMM Level 1 to Level 2, and form a foundation for Level 3.

Point of Contact

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Sponsor

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